

Application No. 09/694,090
Amendment dated October 12, 2004

Amendments to the Claims:

Please amend the claims as follows (the changes in these claims are shown with ~~strikethrough~~ for deleted matter and underlines for added matter). A complete listing of the claims is listed below with proper claim identifiers.

Listing of Claims:

1. (Currently Amended) A particle, comprising:
a semiconductor nanocrystal,
wherein said nanocrystal is doped with ~~a carrier selected from the group consisting of an electron and a hole~~, such that the electron carrier is in a quantum confined state at room temperature and in the absence of an applied electric potential.
2. (Original) The particle of claim 1, wherein said nanocrystal is n-doped.
3. (Cancelled)
4. (Original) The particle of claim 2, wherein said nanocrystal comprises a 2-6 semiconductor compound.
5. (Original) The particle of claim 4, wherein said nanocrystal is selected from the group consisting of zinc oxide, cadmium sulfide and cadmium selenide.
6. (Original) A colloid, comprising a plurality of the particles of claim 1.
7. (Original) A film, comprising a plurality of the particles of claim 1.
8. (Original) The particle of claim 1, further comprising capping groups, on the surface of said nanocrystal.
9. (Original) A film, comprising a plurality of the particles of claim 4.

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10. (Currently Amended) A method of making a particle, comprising:
adding at least one electron carrier to a semiconductor nanocrystal, to
form a doped semiconductor nanocrystal;
wherein said ~~carrier is selected from the group consisting of an electron~~
~~and a hole, and said carrier~~ is in a quantum confined state at room temperature and in
the absence of an applied electric potential.

11. (Currently Amended) The method of claim 10, wherein said adding
comprises contacting said semiconductor nanocrystal with a ~~an oxidizing or~~ reducing
agent.

12. (Currently Amended) The method of claim 10, wherein said adding
comprises ~~oxidizing or~~ reducing electrochemically.

13-14. (Cancelled)

15. (Currently Amended) The method of claim 10 ~~43~~, wherein said nanocrystal
comprises a 2-6 semiconductor compound.

16. (Original) The method of claim 15, wherein said nanocrystal is selected
from the group consisting of zinc oxide, cadmium sulfide and cadmium selenide.

17. (Original) A method of making a colloid, comprising making a plurality of
the particles by the method of claim 10.

18. (Original) A method of making a film, comprising:
forming a colloid by the method of claim 17, and
applying said colloid to a surface.

19. (Previously presented) The method of claim 10, wherein said particle
comprises capping groups, on the surface of said nanocrystal.

20. (Original) The method of claim 11, wherein said semiconductor
nanocrystal is in a film comprising a plurality of semiconductor nanocrystals.

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21. (Original) A product, prepared by the method of claim 10.
22. (Original) A product, prepared by the method of claim 11.
23. (Original) A product, prepared by the method of claim 12.
24. (Currently Amended) A product, prepared by the method of claim 15 43.
25. (Original) A product, prepared by the method of claim 17.
26. (Original) A product, prepared by the method of claim 18.
27. (Original) A product, prepared by the method of claim 20.
28. (Original) A display, comprising a plurality of the particles of claim 1.
29. (Original) An opto-electronic device, comprising a plurality of the particles of claim 1.
30. (Original) The opto-electronic device of claim 29, wherein said device is a memory array.
31. (Original) A method of making an object appear cooler or warmer to an IR detector, comprising coating said object with a plurality of the particles of claim 1.
32. (Original) An n-p junction, comprising a plurality of the particles of claim 1.
33. (Original) The n-p junction of claim 32, further comprising a polymer electrolyte.
- 34-35. (Cancelled)
36. (Previously presented) The particle of claim 5, further comprising trioctylphosphine oxide capping groups on a surface of said nanocrystal.
37. (Previously presented) The particle of claim 8, wherein said capping groups comprise trioctylphosphine oxide.

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38. (Previously presented) The method of claim 10, wherein said adding comprises contacting said semiconductor nanocrystal with a reducing agent, said reducing agent comprising sodium.

39. (Previously presented) The method of claim 38, wherein said reducing agent comprises sodium biphenyl.

40. (Previously presented) The method of claim 11, wherein said adding further comprises contacting said semiconductor nanocrystal with a charge shuttle.

41. (Previously presented) The method of claim 16, wherein said adding comprises contacting said semiconductor nanocrystal with a reducing agent, said reducing agent comprising sodium.

42. (Previously presented) The method of claim 41, wherein said reducing agent comprises sodium biphenyl.